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BEFORE  
THE PUBLIC SERVICE COMMISSION OF  
SOUTH CAROLINA  
DOCKET NO. 90-4-E - ORDER NO. 90-961  
OCTOBER 18, 1990

IN RE: Semi-annual Hearing to Review       ) ORDER APPROVING  
      the fuel purchasing practices       ) BASE RATES FOR  
      and policies of Carolina Power       ) FUEL COSTS  
      and Light Company                    )

On September 19, 1990, the Public Service Commission of South Carolina held a public hearing on the issue of the recovery of the costs of fuel used in electric generation by Carolina Power and Light Company (the Company) to provide service to its South Carolina retail electric customers. The procedure followed by the Commission is set forth in S.C. Code Ann., Section 58-27-865 (Cum. Supp. 1989). The statute provides for a six-month review. This review is from April 1990 through September 1990.

At the hearing on September 19, 1990, William F. Austin, Esquire, Robert W. Kaylor, Esquire, and Adrian N. Wilson, Esquire, represented the Company; Francis P. Mood, Esquire, and Garrett A. Stone, Esquire, represented the Intervenor Nucor Steel, a Division of Nucor Corporation (Nucor); Nancy J. Vaughn, Esquire, represented the Intervenor the Consumer Advocate of South Carolina (the Consumer Advocate); and Marsha A. Ward, General Counsel, represented the Commission Staff. The record before the Commission consists of the testimony of three witnesses on behalf of the Company, three witnesses on behalf of Nucor, three witnesses on

behalf of the Commission Staff, and ten exhibits.

Prior to the presentation of witnesses, the Commission rendered three rulings on evidentiary motions filed by the Company on September 18, 1990. The Commission ordered struck that portion of the direct pre-filed testimony of Nucor witness Dennis Goins set forth at Tr., lns. 15-18, p. 189; lns. 20-24, p. 190; lns. 1-2, p. 191; and ln. 19, p. 196 - ln. 4, p. 198, on the grounds that issues of allocation of fuel revenues by level of service voltage are irrelevant to this fuel adjustment proceeding. The motion to strike by the Company gave as its grounds that the testimony concerning the voltage level was more appropriately a rate case issue. Without making a specific finding in that regard, the Commission rules that the testimony should be stricken as being irrelevant to this proceeding but will instruct the Staff to investigate the matter, study the issues, meet with the parties, and report its findings to the Commission.

Secondly, the Commission ordered struck that portion of the testimony of witness Goins as set forth at Tr., lns. 16-17, p. 191, and related Exhibit DWG-1 that referenced the Robinson No. 2 outage which occurred in 1989, and the subsequent operation of Robinson No. 2 at 60% power during the test period, as well as any other calculation that included the operation of Robinson No. 2 at 60% power; that portion of the testimony of witnesses William R. Jacobs, Jr. and Samuel H. Hobbs, Jr. as set forth at Tr., lns. 12-13, p. 216, relating to a 1989 outage at Robinson No. 2; the amount of the replacement fuel cost at Tr., lns. 15-16, p. 216, relating to a 1989 outage at Robinson No. 2; lns. 4-5, p. 225,

referencing the Robinson No. 2 period of reduced power operation; ln. 3, p. 234 - ln. 11, p. 237; lns. 14-15, p. 241; and references to Robinson No. 2 contained in Exhibit GDS-7. Each of these portions of testimony was struck on the grounds that the 1989 Robinson incident was outside the six-month period at issue here, and had previously been ruled upon by the Commission in its Order No. 90-337 and was therefore irrelevant to the matters under consideration in the instant Docket.

The Commission denied the Company's motion to strike portions of the testimony of witnesses Jacobs and Hobbs as set forth at Tr., lns. 13-23, p. 222 and lns. 1-2, p. 223; ln. 3, p. 223 - ln. 18, p. 224, on the grounds that such testimony regarding past outages other than the one previously ruled upon would be relevant to and received for the purpose of showing possible trends.

Based upon the evidence in the record, the Commission makes the following findings of fact and conclusions of law:

1. Pursuant to S.C. Code Ann., Section 58-27-865 (E), certain guides are established for review by the Commission of a utility's effort to minimize fuel expenses. In evaluating a utility's fuel costs under this section, the Commission is required to examine and determine whether the utility has made every reasonable effort to minimize fuel costs while "giving due regard to reliability of service, economical generation mix, generating experience of comparable facilities and minimization of the total cost of providing service."

2. The record of this proceeding indicates that for the period from February 1990 through July 1990 the Company's actual total

fuel costs for its electric operations amounted to \$264,124,880.

3. Staff reviewed and compiled a percentage generation mix statistical sheet for the Company's fossil, nuclear and hydroelectric plants for February 1990 through July 1990. The fossil generation ranged from a high of 59% in June 1990 to a low of 32% in April 1990. The nuclear generation ranged from a high of 65% in April 1990 to a low of 40% in May and June 1990. The percentage of generation by hydro ranged from 1% to 5% for this period.

4. During the period from February 1990 to July 1990, coal suppliers delivered 4,564,704.31 tons of coal at a weighted average received cost per ton of \$46.52. The Commission Staff's audit of the Company's actual fuel procurement activities demonstrated that the average monthly received cost per ton varied from \$42.83 in March 1990 to \$52.05 in May 1990.

5. The Staff considered the fossil unit outage report submitted by the Company and found no problem areas. The equivalent availability of the Company's fossil system was approximately 90 percent during the period from February 1990 to July 1990. This percentage is better than recent industry experience.

6. Equivalent availability is a meaningful measure of the performance of coal plants because the output of fossil units varies significantly depending on the level of system load. All of the Company's larger fossil units, Roxboro 1, 2, and 3 and Mayo 1, operated at equivalent availabilities above 99 percent.

7. The Company's nuclear system operated at a capacity factor of 75.9% for the six-month period and provided 10 billion

kilowatt-hours of generation. This represented 51.6% of the Company's generation for the period, though the nuclear system accounts for only 37% of the Company's total generation capacity. During the period, Brunswick Unit No. 1 achieved a capacity factor of 83.1%, Brunswick Unit No. 2 achieved a capacity factor of 54.7%, Robinson Unit No. 2 achieved a capacity factor of 76.3%, and Harris Unit No. 1 achieved a capacity factor of 88.4%.

8. The Company's 64.9% nuclear capacity factor for a five year period and its 75.9% figure for the six-month period under consideration here are above the North American Electric Reliability Council's (NERC) five-year capacity factor of 62.1%. Even with the forced outages the Company's average was above the NERC five-year averages. Though Nucor does not challenge the validity of the Company's comparison of its capacity factor to that set as an industry standard by NERC, they argue that those plants in standby operation, those which are out of service for one or more years of the period, should not be included in the comparison group with which the Company compares itself. Their inclusion, they argue, lowers the the group average and works to the Company's benefit. We find, however, that these factors, in and of themselves do not establish that the NERC total plant comparison is unacceptable. Nucor acknowledges the fact that the NERC data used by the Company includes information on more than 4000 electric generating units representing over 91% of the installed capacity in North America. They do not challenge the fact that these plants were all domestic, commercial plants subject to the same regulatory, engineering, and technical criteria and resultant

problem areas as was Carolina Power and Light. Inclusion of all plants lowers the average to one which reflect actual industry performance or experience. Exclusion of some plants based on arbitrary determinations of periods of outages creates statistics which do not take into account the full range of energy generation. All plants, including Carolina Power and Light, experience varying periods of outages. This factor is therefore a necessary part of the total data base used by the industry. The data base becomes distorted when the parties are allowed to pick and choose those plants they want to include and exclude. We conclude, therefore, that the more credible standard for the evaluation of individual plant operation is the total industry experience.

9. The Commission's Staff conducted an extensive review and audit of the Company's fuel purchasing practices and procedures for the subject period. The Staff's accounting witness, Jacqueline R. Cherry, testified that the Company's fuel costs were supported by the Company's books and records.

10. The Commission recognizes that the approval of the currently effective methodology for the recognition of the Company's fuel costs requires the use of anticipated or projected costs of fuel. The Commission further recognizes that inherent in the utilization of a projected average fuel cost for the establishment of the fuel component in the Company's base rates is the fact that variations between the actual costs of fuel and projected costs of fuel will occur during the period and will likely exist at the conclusion of the period. Section 58-27-865(B), establishes a procedure whereby the electrical

utilities will "account monthly for the difference between the recovery of fuel costs through base rates and the actual fuel costs experienced, by booking the difference to unbilled revenues with a corresponding deferred debit or credit, the balance of which will be included in the projected fuel component of the base rates for the succeeding period."

11. The record of this proceeding indicates that the comparison of the Company's fuel revenues and expenses for the period February 1990 through July 1990 produces an under-recovery of \$4,564,058. After taking into consideration a projected over-recovery of \$2,146,977 for the months of August 1990 and September 1990, the cumulative under-recovery is \$2,417,082.

12. Company witness, Dale Bouldin, Manager - Rate Development and Administration, proposed that the Commission maintain the fuel component in the base rates at the presently approved rate of 1.675 cents per kilowatt-hour for the six months ending March 1991. Mr. Bouldin testified that he projected that the Company's fuel expense for the next six-month period would be 1.597 cents per kilowatt-hour. Combining the projected period expense with the total under-collection at September, he determined that a 1.684 cents per kilowatt-hour factor would be necessary for the next six-month period. However, he further testified that the Company was requesting that a factor of 1.675 cents per kilowatt-hour be approved for the next period in the interest of rate stability. At that rate, he explained, the Company would recover the under-recovered balance in the deferred account at the beginning of the year and a portion of the fuel cost incurred during the period

according to his projections. His calculations did not take into consideration any possible disallowances of costs incurred, but did take into consideration scheduled maintenance outages for certain generating units, based on the latest plans, and includes a forced outage rate which is based upon historic forced outage rates.

13. The Commission Staff's witness William O. Richardson, Utilities Engineer Associate, utilizing the currently projected sales and fuel cost figures for the period and including the projected balance in the cumulative recovery account through September 1990 as an under-recovered amount of \$1,817,193, estimated the average fuel expense to be 1.665 cents per kilowatt-hour. This includes a Staff calculated disallowance of \$599,888 in excessive fuel costs associated with the Brunswick Nos. 1 and 2 outages. See findings Nos. 14-18, infra. Applying this factor to the period would create an estimated \$8,928 over-collection in the cumulative recovery account as of March 1991. In keeping with the spirit of the statute to allow utilities to recover prudently incurred fuel costs "in a manner that tends to insure public confidence and minimize abrupt changes in charges to consumers", the Commission Staff recommended that the fuel component in the base rate be set at 1.650 cents per kilowatt-hour for the six month period of October 1990 through March 1991. The Staff estimated that this rate would produce an under-recovery of \$406,290 in the cumulative recovery account by the end of the period. The Commission finds the Staff recommendation of a 1.650 cents rate per kilowatt-hour to be more persuasive and to best reflect the balancing of the need of the Company to meet its fuel



costs with the spirit of the statute to insure the confidence of the ratepayers.

14. The Commission also recognizes that it is authorized to allow for the recovery of all prudently incurred fuel costs and to disallow those which, without just cause, are the result of the utilities failure to make every reasonable effort to minimize fuel costs. S.C. Code Ann. Sections 58-27-865(E) and (F). Our review of the Company's nuclear unit and nuclear management indicates that the Company was imprudent in its actions as to outages at the Brunswick Unit No. 1 from May 21, 1990, to June 13, 1990, and at Brunswick Unit No. 2 from May 20, 1990, to June 12, 1990, so as to impact its fuel costs.

15. The major advantage of producing electricity by nuclear power is the relatively low fuel cost for nuclear fueled generating facilities. The cost of generation of electricity is generally composed of fixed costs such as interest, taxes, and insurance, operating and maintenance (O&M) costs and fuel costs. For fossil fueled plants the cost of the fuel is a large portion of the total cost to generate electricity. For nuclear power plants, while the capital and O&M costs are high compared to fossil fueled plants, the fuel costs are comparatively low. Thus if the electricity generated by a nuclear plant must be replaced by electricity generated by a coal or gas fired plant, the Company incurs higher fuel costs. This difference between the fuel cost to generate a quantity of electricity by fossil fuel and the fuel cost to generate the electricity by nuclear fuel is the excess replacement fuel cost. The standard of performance imposed in determining if a

company should be allowed to pass such excess replacement costs to the ratepayers is based on what management should reasonably have done given what was known at the time decisions were made or actions taken. As the Court stated in Hamm vs. Public Service Commission of South Carolina and Carolina Power and Light Company, 291 S.C. 178, 352 S.E.2d 476 (1987), "[t]he rule does not require the utility to show that its conduct was free from human error; rather, it must show that it took reasonable steps to safeguard against error." However, the duty of care owed to the public must be taken into consideration. High standards should clearly be applied to protect the health and safety of the public. Likewise, because of the high costs which result from unnecessary or excessively long shutdowns and their impact on costs, a high standard should be applied to the decisions and actions of those whose duty it is to operate these public utilities. Our review of the record herein establishes that the Company has acted unreasonably as to the training of its Brunswick operators so as to require the disallowance of a portion of its fuel costs incurred. We find that the Company failed to take reasonable steps to safeguard against these training errors and that this failure was the cause of outages at both Brunswick nuclear generating units for the following reasons:

a. Nuclear plant operators are licensed by the NRC based on successfully demonstrating their proficiency on NRC administered licensing examinations. Each operator is requalified annually by testing either through the NRC or by the Company. The NRC participates in this requalification process for each operator at

least once every six years. During the period of April 30 through May 7, 1990, the NRC conducted operator requalification exams for four Brunswick operating crews which included 20 individual operators. Fourteen of the twenty individuals and three of the four crews failed the test. These individuals and an additional four crews with twenty-seven operators were retested on May 18-19, 1990. Eight of the operators, and all four of the crews failed this second testing. In the opinion of the Company, this left too few qualified crews to continue operating the station resulting in the shutdown of Unit No. 2 on May 20, 1990, and the shutdown of Unit No. 1 twenty-four hours later. The NRC confirmed this shutdown by ordering that it remain so until the NRC agreed that a re-start was appropriate. After these first failures, the NRC issued a evaluation report to the Company on June 7, 1990, indicating that there were programmatic deficiencies in the Brunswick requalification program. After about three weeks of intensive additional operator training and requalification, Unit 2 restarted on June 12, 1990, following an outage of 545 hours and Unit 1 on June 13, 1990, following an outage of 547 hours. These outages resulted in excess fuel replacement costs of \$1,221,375 on a South Carolina retail jurisdictional basis. The amount of the disallowance was determined by taking the total down time hours at each of the Brunswick units during the outages, multiplied by the capacity factor times the Company owned capacity percent at each unit, times the difference in the final cost per kilowatt-hours between that unit and average fossil fuel.

b. The Company had been informally notified during

October 1989 that the NRC would conduct requalification testing at Brunswick in April 1990. In mid-December 1989, the simulator used in training and testing was taken out of service to conduct modifications needed to comply with current regulations. The Company incurred problems in modifying the computer software and the simulator was not returned to service until January 21, 1990, though it had been originally planned to be returned to service in late December 1989. The Company was formally notified of the date of NRC testing on January 24, 1990, by a letter from NRC. The simulator was available for training from February 19, 1990, until the requalification exams began on April 30, 1990. This was adequate notice of the testing and ample time to allow for preparation.

c. On June 28, 1990, Mr. R.A. Watson, Carolina Power & Light's Senior Vice President for Nuclear Generation, provided to the NRC the Company's assessment of the root causes for the requalification failures. Some of the particular root causes identified by the Company include:

- a failure to effectively factor available industry training information and experience into the program,

- high turnover rates of key personnel,

- a failure by training management to fully appreciate the licensed training process and requirements,

- a programmatic failure of the internally conducted simulator evaluations to sufficiently identify operator performance problems,

- pass/fail criteria for internal examinations that were

inconsistent with NRC requirements and current industry standards,

--failure of plant management to provide meaningful feedback to operators on the necessity for maintaining a high level of performance,

--a failure of operations management to actively participate in evaluations of their operating crews.

However, as Company witness Coats admitted, since both the Robinson plant and the Harris plant had already undergone testing under the enhanced program being administered by the NRC, the Company should have foreseen the potential for failure of Brunswick operators in this testing cycle under the current administration and implementation of its operator training program.

d. In March 1989, the Company was aware that a nuclear unit belonging to a neighboring utility was forced to shut down while it prepared operators for re-testing when it experienced requalification problems not unlike those experienced by Brunswick. In addition, according to information provided by the Company, seven plants of other utilities were found to have "unsatisfactory" operator requalification programs by the NRC in 1989 and early 1990. Six of these eight requalification program problems occurred in 1989 prior to when the Company states that it was first told of the schedule for the Brunswick requalification examinations by the NRC. These recent failures by other utilities should have alerted the Company to the need for careful assessment of its requalification program, and preparation of its operators for the requalification examinations. Given the totality of information available to Company management, the Company should have recognized

that passing the requalification exam was not to be taken lightly, that the status quo was not acceptable, and that the simulator portion was a critical element of the exam.

e. Though the Company stated that the failure was a product of the limited amount of time for training, the NRC's Requalification Program Evaluation Report identifies a number of programmatic deficiencies in the examination and its job performance measures including the need for simulations of plant malfunctions in emergency situations. In view of these deficiencies, a longer period of training time alone would not have resolved the problems. The Company had ten weeks, from February 19, 1990 through April 30, 1990, to prepare operators for the requalification exams on their modified simulators. This should have been sufficient time within which to prepare in the absence of other deficiencies in the training program itself. Indeed, after the outage, the Company required only three weeks additional time for additional requalification training.

f. The Company increased simulator training time from 40 hours to 60 hours per year at both the Harris and Robinson plants, but not at the Brunswick plant. As previously noted, the Brunswick simulator was taken out of service to conduct modifications needed to comply with current regulations. At the least, in order to mitigate the effect upon the ratepayer and allow time to adequately prepare its operators, the Company could have requested additional training time from the NRC. It was aware of the proposed schedule prior to the actual date, and they are aware that making, testing, and validating computer software is prone to schedule delays. The

Company should have recognized the high probability that available training time would be reduced. Even after the delays began, ample time still remained to request a delay in the requalification examinations to allow for further training time.

g. The Company introduced no evidence to suggest that their failure to request a delay was the result of a belief that their request would be refused. Indeed, even in the event that the request was refused, the Company could have made an extra effort to intensify training prior to the scheduled date. The Company states that it had reasonable confidence based on the previous training program successes that its operators were prepared for the tests. That reasonable confidence was not based on sound management and did not take into consideration the factors set out above.

16. The Company is entitled to have the advantage of a two-week period of planned outage which it did not incur in calculating the period of the outage to be disallowed. Brunswick Unit No. 1 had been scheduled for a two-week outage to be conducted prior to the end of June for required emergency power supply testing. On April 19, 1990, the Company requested the NRC to grant a one time exception to allow the testing to be deferred until a scheduled refueling outage beginning in September 1990. Company witness Coats testified that emergency power testing is an area that has a high degree of sensitivity with the NRC, and it is not certain whether the NRC would have granted the Company's request to defer the testing. Mr. Coats further testified that in any event, the earliest date the NRC could have ruled on the April 19, 1990, request was June 1, 1990, because of the requirement that the

request be published in the Federal Register, along with a 30-day period for comments. By the time the comment period ended, Brunswick Unit No. 1 had already made the decision to perform, and in fact had already begun performance of, the emergency power testing. The Company carried out this emergency power supply testing during the operator training outage eliminating the need for the June outage and the request for the exception was withdrawn. The Company also carried out constructability reviews, pending maintenance activities and corrective maintenance activities during this period. In addition to eliminating the need for the Unit 1 two-week outage and accomplishment of work that will reduce the outage scope for the Unit 1 fall 1990 refueling and maintenance outage, the work accomplished during this outage positioned the plant for reliable operation during the summer 1990 peak season. Completion of this type of maintenance activity reduced the potential for equipment failures which could lead to forced outages. Nucor's witnesses Hobbs and Jacobs took the position that the Company had erred in its earlier interpretation of a Technical Specification requirement, which concluded that the emergency power testing could be performed without a complete shutdown of a Brunswick unit. They contended that once the Company realized that the proper interpretation of the Technical Specification required Brunswick Unit No. 1 to be in a shutdown mode, it became necessary to schedule a special shutdown to perform the testing or obtain an extension of time from the NRC. They further contend that had a proper interpretation been made initially, the testing could have been performed during an earlier



outage. Company witness Coats testified that the Company had not erred and that its initial interpretation of the specification was based on concurrence from the NRC. At that time the specification was interpreted to allow the testing of systems on a system-by-system basis and not during a complete shut-down of the plant. These specifications were revised in February 1990 to provide that testing would have to take place while the plant was in a shut-down mode, thereby requiring an outage prior to June 23, 1990, for the diesel generators to be tested. Hearing Exhibit No. 7 supports this view and was not contested at the hearing. The Commission therefore finds that it was prudent for the Company to conduct the emergency power testing of its diesel generator system while the unit was off-line rather than to wait for the NRC to rule on its request for a waiver, in that we believe that the decision to proceed with the testing in all probability saved two weeks of outage time which would have been required at a later time. We further find that the Company's interpretation of its Technical Specifications prior to the February 1990 revision was proper and did not result in the unwarranted need for a special shutdown of Brunswick Unit No. 1 to conduct the testing.

17. As noted above, the evidence and testimony in the record support a finding that by conducting the emergency power testing of its diesel generator system during the training outage, the Company eliminated the need for a two-week outage of Brunswick No. 1 in June 1990. The Commission finds that this clearly "minimiz[ed] the total cost of providing power for the period." Allowing the Company credit for this period reduces the total length of the

operator training outages from six to four weeks and the cost of the outage from \$1,221,375 to \$843,211 on a South Carolina retail jurisdictional basis. To determine the appropriate capacity factor to be used by the Commission to determine the lost generation during the Brunswick outages, the Commission was presented with various options including lifetime capacity factors of 54 and 49%. The Commission Staff applied a 60% capacity factor, which represents the 1989 capacity factor for each unit. Nucor used a capacity factor of 85%, the factor used by the Company for planning purposes exclusive of refueling. Since the Company was not scheduled for refueling during the outage, we find Nucor's reasoning in this regard to be persuasive, and find that it is not appropriate to apply a capacity factor that includes refueling periods to estimate the production during periods when the plant was planned to be and should have been in normal operation. Therefore, in calculating the excess replacement fuel cost for both outages, we have used the Company's expected capacity factor of 85% for the Brunswick units.

18. However, in light of the requirements of Section 58-27-865(E), *supra.*, to give "due regard to reliability of service, economical generation mix, generating experience of comparable facilities, and minimization of the total cost of providing service", and in accordance with our findings herein, we find that while it is inappropriate to allow the Company to recover the full replacement cost, the Company's total performance during this period leads us to mitigate the effect of these costs. As noted herein, the Company has maintained laudably reliable service

and has operated its fossil fuel units both economically and efficiently during this period. Even considering the problems with operator training, its nuclear units were able to provide 51% of the total output for the Company, despite the fact that the nuclear system accounts for only 37% of the Company's total generation capability. The performance of the Company's nuclear system for the six-month period ending July 31, 1990, was above the NERC five-year levels of performance. Though the Company has incurred excess fuel costs as a result of its imprudent handling of its operator training, its reliability of service, economical generation mix, minimization of the total cost of providing service and the Company's generating experience as compared to that of other companies, calls for a mitigation of the extent of these costs. While credit for the elimination of the two-week outage in June 1990 while the Company conducted diesel generator testing at Brunswick No. 1 can be readily quantified, as revealed in the record and as noted above, the appropriate credit to give to the Company for the other factors discussed herein cannot be easily quantified; rather such factors are more qualitative in nature. Nevertheless, S.C. Code Ann., Section 58-27-865(A) gives the Commission the authority to determine the fuel cost it deems "appropriate" for the proper test period. In the exercise of its discretion in setting just and reasonable rates, the Commission finds that it is appropriate to require the Company to absorb one-half of the replacement costs to remind the Company of its duty to minimize costs at all times. Therefore, the Company shall be disallowed the sum of \$421,605.50, and the balance shall be borne

by the ratepayers.

19. Nucor presented testimony tending to show that in addition to the May outages, four other periods of questionable delay at Brunswick No. 2 warranted further investigation. They identified a delay on September 18, 1989, involving a re-circulation system suction nozzle plug installation; a delay from October 18, 1989, to October 29, 1989, involving problems disassembling a re-circulation system valve; a delay from November 2, 1989, to November 30, 1989, involving bad welds in the re-circulation system piping; and a delay from February 5, 1990, to February 8, 1990, because of failure to complete prerequisites for the installation of fuel pool gates. Though Nucor does not conclude that these outage periods were the result of imprudent management, they recommended that the excess replacement fuel costs resulting from these delays be disallowed because they did not feel that the Company had demonstrated that these delays were reasonable. The Commission concurs with Nucor that these delays were not the result of imprudent action. Our review of the facts presented as to the causes of these delays does not tend to indicate that they were the result of imprudent action, but rather tend to indicate that they were instead occasioned by the vagaries of equipment malfunctions and failures of human proficiency. The Commission finds that there is no basis in the record to disallow the excess replacement fuel costs resulting from these delays.

20. However, witness Coats testified to a payment of between \$400,000 to \$500,000 to the Company from its contractor General Electric Company (GE) as a result of GE's failure to meet the

projected completion time of a repair contract. This related to the Brunswick No. 2 refueling outage in which GE paid a penalty as a result of going twelve days over the contract completion time. There was no evidence presented to establish whether or not any part of these funds are or should be considered to be fuel-cost related. The Commission Staff is therefore directed to investigate this lack of performance penalty to determine if any part is related to fuel costs and report their findings to the Commission.

21. Nucor's witnesses Goins recommended to the Commission that it limit adjustments of the base fuel factor to once a year on the grounds that a six-month evaluation is inefficient and biased against the regulators. The Commission points out that the requirement for a six-month rate adjustment period is set out in Section 58-27-685, *supra.*, and is therefore mandated by the General Assembly. Any change to the rate review period is properly left to the legislature.

22. Witness Goins also recommended that the Commission should investigate ways in which to modify the base fuel factor to eliminate potential problems with nonfirm, off-system sales. The Commission directs the Commission Staff to specifically examine these issues in each case and include language in its audit procedures which will address these issues and preclude any possible problems. Witness Goins also suggested that the Commission should investigate ways to allow the ratepayers to share in the profits from such sales. The Commission finds that profits from anticipated sales are taken into account and credited to the ratepayer in the setting of rates and charges. Nucor's proposal to

allow the ratepayer to share in the nonfirm off-system sales is therefore denied.

23. The Commission also makes note of the failure of the Company to adhere fully to time requirements for response to discovery requests. We note especially the offer of an amendment to interrogatory responses by counsel for the Company during examination of a witness on the stand. The materials offered were directly responsive to interrogatories filed by Nucor of which the witness, a responsible Company official, was fully aware. After responses to interrogatories had been filed which were less than fully responsive to this interrogatory, this official then admittedly requested that further information be prepared in response to this interrogatory more than one week prior to the hearing in this matter. However, the Company made no effort to inform Nucor of its intent to update the interrogatories until the official was questioned about the filed responses on the witness stand. The proffer of this document was rightfully refused by the Commission. Moreover, the Commission notes that the Company had not filed responses with the Commission even as of the date of the hearing, to the Second set of Interrogatories propounded by Nucor to Carolina Power and Light or to the Second Set of Interrogatories propounded by the Consumer Advocate to the Company. The Commission reminds the Company that discovery requests and their attendant responses form the basis for a full and complete record in each case and allow this Commission to render informed decisions. The Company is therefore reminded that it shall in the future fully respond to discovery propounded to it by all parties and by the

Commission Staff in an open and expeditious manner.

IT IS THEREFORE ORDERED THAT:

1. The base fuel factor for the period October 1990 through March 1991 is set at 1.650 cents per kilowatt-hour.

2. Carolina Power and Light shall file with the Commission for approval, within ten (10) days of the date of this Order, rate schedules designed to incorporate our findings herein and an Adjustment for Fuel Costs, as demonstrated in Appendix A, attached hereto and incorporated herein by reference.

3. The allowable fuel expense for the period February 1990 through September 1990 shall be reduced by \$421,605.50 because of the imprudent actions of the Company associated with the operator training related outages at Brunswick Units Nos. 1 and 2 during May and June 1990, giving due consideration to the Company's efficient operation of its total generation.

4. The reduction in the allowable excess fuel costs does not include the fourteen days of outage associated with NRC required emergency power supply testing at Unit No. 1, and is based on an 85% capacity factor rating for the two units.

5. The Commission Staff shall investigate ways to modify the base fuel factor to eliminate potential problems with nonfirm, off-system sales and will specifically examine these issues in each case and include language in their Audit Procedures to address these matters to preclude possible problems in this area.

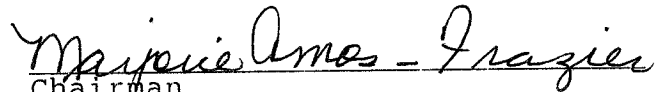
6. The proposal by Nucor to provide ratepayers a share of Carolina Power and Light's profits from the nonfirm, off-system sales is denied.

7. The Commission Staff shall investigate, study the issue, meet with the parties and report to the Commission on the allocation of fuel revenues by level of service voltage.

8. The Commission Staff shall investigate the \$400,000 to \$500,000 "lack of performance" penalty paid to the Company by GE in order to determine if any portion of the penalty is fuel-cost related, and shall report their findings to the Commission.

9. The Company shall fully respond to discovery from all parties and from the Commission Staff in an open and expeditious manner in all proceedings before this Commission.

BY ORDER OF THE COMMISSION:

  
Chairman

ATTEST:

  
Executive Director

(SEAL)



CAROLINA POWER AND LIGHT COMPANY

ADJUSTMENT FOR FUEL COSTS

APPLICABILITY

This adjustment is applicable to and is a part of the Utility's South Carolina retail electric rate schedules.

The Public Service Commission has determined that the costs of fuel in an amount to the nearest one-thousandth of a cent, as determined by the following formula, will be included in the base rates to the extent determined reasonable and proper by the Commission for the succeeding six months or shorter period:

$$F = \frac{E}{S} + \frac{G}{S_1}$$

Where:

F = Fuel cost per kilowatt-hour included in base rate, rounded to the nearest one-thousandth of a cent.

E = Total projected system fuel costs:

- (A) Fuel consumed in the Utility's own plants and the Utility's share of fuel consumed in jointly owned or leased plants. The cost of fossil fuel shall include no items other than those listed in Account 151 of the Commission's Uniform System of Accounts for Public Utilities and Licensees. The cost of nuclear fuel shall be that as shown in Account 518 excluding rental payments on leased nuclear fuel and except that, if Account 518 also contains any expense for fossil fuel which has already been included in the cost of fossil fuel, it shall be deducted from this account.

Plus

- (B) Purchased power fuel costs such as those incurred in unit power and Limited Term power purchases where the fuel costs associated with energy purchased are identifiable and are identified in the billing statement.

Plus

- (C) Interchange power fuel costs such as Short Term, Economy, and other where the energy is purchased on economic dispatch basis.

Energy receipts that do not involve money payments such as Diversity energy and payback of storage energy are not defined as purchased or interchange power relative to this fuel calculation.

Minus

- (D) The cost of fuel recovered through intersystem sales including the fuel costs related to economy energy sales and other energy sold on an economic dispatch basis.

Energy deliveries that do not involve billing transactions such as Diversity energy and payback of storage are not defined as sales relative to this fuel calculation.

S = Projected system kilowatt-hour sales excluding any intersystem sales.

G = Cumulative difference between jurisdictional fuel revenues billed and fuel expenses at the end of the month preceding the projected period utilized in E and S.

S<sub>1</sub> = Projected jurisdictional kilowatt-hour sales for the period covered by the fuel costs included in E.

The appropriate revenue related tax factor is to be included in these calculations.

THE FUEL COST F AS DETERMINED BY SOUTH CAROLINA PUBLIC SERVICE COMMISSION  
ORDER NO. 90-961 FOR THE PERIOD OCTOBER 1990 THROUGH MARCH 1991 IS 1.650  
CENTS PER KWH.